<u>IN THE CLAIMS</u>:

Cancel without prejudice claims 1, 2, 11 and 13, leaving:

1. and 2.   (canceled)

1 3.   (previously presented)   A method of preparing for
2 incremental printing of a color image; said method
3 comprising:
4   receiving or generating data representing a device-
5 color implementation of the image, including respective
6 initial representations of at least black ink and chro-
7 matic-color inks; and
8   applying a substantially direct transform to:
9
10   extract, from the initial representations,
11   and modify quantity of black ink
12   represented in the data, and
13
14   recombine the modified quantity of black
15   ink with the initial representations;
16
17   wherein the applying step comprises automatic modi-
18 fication of:
19
20   black ink represented in the data, primarily in
21   highlight and midtone regions of the im-
22   age, to mitigate graininess in those re-
23   gions; and
24
25   black ink represented in the data, in darker
26   regions of the image, to smoothly blend
27   black-ink quantities in the darker regions
28   with the modified black-ink quantities in
29   the highlight and midtone regions.

1   4. (original) The method of claim 3, wherein the auto-

2   matic modification of black comprises establishing:

3   a black-ink onset point; and

4   an increasing function of said initial representa-

5   tion of black ink, in regions of an image darker than the

6   onset point.

1   5. (original) The method of claim 4, wherein the auto-

2   matic modification of black further comprises:

3   merging said function into substantially a black-

4   identity function in darkest regions of an image.

1   6. (original) The method of claim 3, wherein the apply-

2   ing step further comprises automatic modification of:

3   chromatic-color inks to accommodate the black-ink

4   modifications.

1   7. (original) The method of claim 6, wherein:

2   the applying step comprises automatically recombin-

3   ing the modified quantity of black in a way that is in-

4   versely proportional to the initial representations of at

5   least the chromatic-color inks.

1   8. (original) The method of claim 7, wherein:

2   the automatically recombining comprises finding in a

3   lookup table new quantities of said representations, cor-

4   responding to said quantified black-modifying.

1   9.. (original). The method of claim 7, wherein:

2   final ink representations C', M', Y' and K' for

3   cyan, magenta, yellow and black respectively are found

4   from the expressions:

5

6        $C' = C + (1 - C) \cdot A_c(K)$

7        $M' = M + (1 - M) \cdot A_M(K)$

8        $Y' = Y + (1 - Y) \cdot A_Y(K)$

9        $K' = A_K(K)$,

10

11   where C, M, Y and K are the initial representations of

12   the same colors respectively, and A_c, A_M, A_Y and A_K are

13   respective preestablished automatic black-replacement

14   functions.

1 10. (previously presented) A method of preparing for
2 incremental printing of a color image; said method
3 comprising:
4   receiving or generating data representing a device-
5 color implementation of the image, including respective
6 initial representations of at least black ink and chro-
7 matic-color inks; and
8   applying a substantially direct transform to:
9
10   extract, from the initial representations,
11   and modify quantity of black ink
12   represented in the data, and
13
14   recombine the modified quantity of black
15   ink with the initial representations;
16
17   wherein the applying step comprises automatic modi-
18 fication of black ink represented in the data, in high-
19 light and midtone regions of the image; and
20   wherein the direct transform application comprises
21 finding in a lookup table new quantities of said rep-
22 resentations, corresponding to said quantified black-
23 modifying.

11. (canceled)

1 12. (previously presented) A method of preparing for

2 actual hardcopy incremental printing of a color image;

3 said method comprising:

4   receiving or generating data representing a device-

5 color implementation of the image, including respective

6 initial representations of at least black ink and chro-

7 matic-color inks; and

8   applying a substantially direct transform to:

9

10   extract, from the initial representations,

11   and modify quantity of black ink

12   represented in the data, and

13

14   recombine the modified quantity of black

15   ink with the initial representations;

16

17   wherein color initially having no black-ink compo-

18 nent is passed through, without modification, substan-

19 tially to said actual hardcopy printing.

13. (canceled)

1 14.   (previously presented)   A method of preparing for
2 incremental printing of a color image; said method com-
3 prising the steps of:
4   receiving or generating data representing a device-
5 color implementation of the image, including respective
6 initial representations of at least black ink and chro-
7 matic-color inks; and
8   applying a substantially direct transform to:
9
10   extract, from the initial representations,
11   and modify quantity of black ink
12   represented in the data, and
13
14   recombine the modified quantity of black
15   ink with the initial representations;
16
17   a human operator's manipulation of a control that
18 selects an amount and a direction of black-ink modifica-
19 tion; and
20   thereafter, substantially automatic operation of
21 said direct transform to effectuate the modifying and re-
22 combining parts of the applying step according to the
23 operator's selection.

1   15. (original) An incremental printing system for form-
2   ing an image by construction from dots deposited on a
3   printing medium, based upon original image data in de-
4   vice-color space; said system comprising:
5   a direct device-color to device-color substantially
6   automatic computation module for modifying color image
7   data with no manipulation in terms of perceptual color
8   parameters; and
9   an output incremental printing stage for printing
10 the image from the modified data.

1   16. (original) The system of claim 15, wherein the aut-
2   omatic module comprises:
3   an input for receiving such original image data in
4   the form of initial four-or-more-color separations; and
5   an output for directing four-or-more-color separa-
6   tions to the output stage.

1 17. (previously presented) An incremental printing
2 system for forming an image by construction from dots
3 deposited on a printing medium, based upon original image
4 data in device-color space; said system comprising:
5   a direct device-color to device-color substantially
6 automatic computation module for modifying color image
7 data with no manipulation in terms of perceptual color
8 parameters; and
9   an output incremental printing stage for printing
10 the image from the modified data;
11   wherein the automatic module comprises a computation
12 submodule for establishing:
13
14   a black-ink onset point; and
15
16   an increasing function of an initial amount of
17   black ink, in regions of an image darker
18   than the onset point.

1 18. (original) The system of claim 17, wherein the
2 automatic module further comprises:
3   a computation submodule for merging said function
4 into substantially a black-identity function in darkest
5 regions of an image.

1 19. (original) An incremental printing method for form-
2 ing an image by construction from dots deposited on a
3 printing medium, based upon original image data in
4 device-color space; said method comprising the steps of:
5   a direct device-color to device-color substantially
6 automatic computation to modify color image data with no
7 manipulation in terms of perceptual color parameters; and
8   then incrementally printing a hardcopy image from
9 the modified data.

1 20. (original) An incremental-printing image-prepara-
2 tion method, for accommodating personnel who are accus-
3 tomed to thinking in terms of ink combinations rather
4 than in terms of numerical perceptual color models; said
5 image to be printed based upon an original image data
6 file that substantially expressly represents inking to be
7 used; said method comprising the steps of:
8   receiving from said personnel an indication of quan-
9 tity of black ink and other inks desired, in the form of
10 at least four color separations, for use in incremental
11 printing; and
12   in preparing for incremental printing, directly and
13 automatically implementing changes in represented quan-
14 tity of black ink, for colors that initially have black
15 ink.

1 21. (previously presented) An incremental-printing
2 image-preparation method, for accommodating personnel who
3 are accustomed to thinking in terms of ink combinations
4 rather than in terms of numerical perceptual color mod-
5 els; said image to be printed based upon an original
6 image data file that substantially expressly represents
7 inking to be used; said method comprising the steps of:
8 receiving from said personnel an indication of quan-
9 tity of black ink and other inks desired, in the form of
10 at least four color separations, for use in incremental
11 printing; and
12 in preparing for incremental printing, directly and
13 automatically implementing changes in represented quan-
14 tity of black ink, for colors that initially have black
15 ink;
16 wherein the change-implementing step comprises auto-
17 matic reduction of black ink represented in the data,
18 primarily in highlight and midtone regions of the image,
19 to mitigate graininess in those regions.

1 22. (previously presented) An incremental-printing
2 image-preparation method, for accommodating personnel who
3 are accustomed to thinking in terms of ink combinations
4 rather than in terms of numerical perceptual color mod-
5 els; said image to be printed based upon an original
6 image data file that substantially expressly represents
7 inking to be used; said method comprising the steps of:
8 receiving from said personnel an indication of chan-
9 ge in quantity of black ink desired, in incremental
10 printing; and
11 directly implementing the indicated change, in actu-
12 al incremental hardcopy printing.

1   23.   (original)   The method of claim 22, wherein:

2   the indication is substantially without reference to

3   any perceptual color model.

1   24.   (original)   The method of claim 22:

2   wherein the implementing step comprises automatic

3   adjustment in quantities of chromatic inks, compensating

4   for the indicated change in quantity of black ink;

5   wherein said compensating comprises substantially

6   maintaining tonal values in areas of ink change; and

7   further comprising the step of applying the data

8   file with the implemented change, to printmasking for

9   hardcopy printing.

1   25.   (original)   An incremental printing system for form-

2   ing an image by construction from dots deposited on a

3   printing medium, based upon original image data in

4   device-color space, under control of a user; said system

5   comprising:

6   a direct device-color to device-color graphical com-

7   puter interface module for enabling the user to modify

8   color image data in preparation for printing, without re-

9   quiring the user to directly manipulate perceptual color

10   parameters; and

11   an output incremental printing stage for printing

12   the image from the modified data.

1 26. (original) The system of claim 25, wherein the
2 interface comprises controls enabling the user to set
3 substantially directly:
4   a black-onset point; and
5   an increasing function of an initial amount of black
6 ink, for black-containing colors darker than the black-
7 onset point.

1 27. (original) The system of claim 26, wherein:
2   the interface further comprises controls enabling
3 the user to substantially directly set merging of said
4 function with a black-identity function in darkest re-
5 gions of the image.

REMARKS

Applicants thank Examiner Jerome Grant II for having
allowed:

- claims 25 through 27 in the March 17 Official Action, and
- claims 3 through 10, claim 12, and claims 14 through 24
  in the November 15 Advisory Action.

Applicants respectfully note again that claims 25 through 27
remain in this case, and again request confirmation that they
remain allowed. They have never been finally rejected.

Claims 1, 2, 11 and 13 were again rejected in the Novem-
ber 15 Advisory Action. Those claims have now been canceled.